the difficulty in establishing the criteria for defining contamination. There are undoubtedly trace levels of some contaminants in nearly all shallow ground water systems, simply from the percolation and diffusion of airborne contaminants that are ubiquitous in the atmosphere and in rainfall.

According to information provided in the U.S. Congress, Office of Technology Assessment (1984) report and by Pye et al., (1983), the most significant sources of ground water contamination are landfills, surface impoundments, subsurface percolation from septic tanks and cesspools, open dumps, underground storage tanks, and injection wells. The most frequently detected contaminants in ground water generally include chlorinated organic solvents such as trichloroethylene, tetrachloroethylene, trichloroethane, dichloroethane, and dichloroethylene; phthalates and phthalic acid; benzene and ethylbenzene; carbon tetrachloride; chloroform; metals; chloride and nitrate; and radium-226. Many areas have specific problems unique to location and land use activities. This is true for pesticide contamination problems that have occurred in areas such as Florida, the Central Valley of California, and Long Island, New York.

The definition of appropriate management for ground water resources, including the proper role of actions designed to prevent future contamination, requires consideration of the relative advantages and disadvantages of various alternatives.

STATES SELECTED FOR REVIEW

In selecting state and local programs for review, the committee attempted to include those programs that are representative of the range of source types affecting ground water, the hydrogeologic characteristics, contamination problems, institutional arrangement for protection, and the types of protection strategies found across the United States. Where possible, the committee selected those programs that have been in existence long enough to permit some level of analysis of their experience in the programs. Following is a list of the programs selected for review and the principal reasons for their selection:

- Arizona—A state with important quality and quantity issues and a newly established ground water management program.
- California—A large state with a wide range of problems and programs with emphasis on agriculture- and industry-related pollution and an extensive and unique intergovernmental structure for protection programs.
- Colorado—A state with important quality and quantity issues with emphasis on agriculture, residential and commercial development, and mining-related problems and a ground water strategy including a ground water classification system in the beginning stages of implementation.